HELP ?

Dominance through technology: Is Japan creating a yen bloc in Southeast Asia?

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[Headnote]
Is Japan Creating Yen Bloc in Southeast Asia?

The recent recession in Japan and the resurgence of American competitiveness in various industries have helped reestablish the preeminence of U.S. manufacturing in world markets. However, while the Japanese economic threat may have receded temporarily, this turnaround has had little effect on important long-term trends in technology transfer that endanger the prosperity of American firms at home and abroad. The impact of technology transfer on economic competitiveness is already evident in the vibrant Southeast Asia region, where Japanese firms now dominate the local economies through strategic control of technology. And while members of the Asia-Pacific Economic Cooperation forum meet in November to discuss free trade and investment, increasingly vocal support in the region for a Japan-anchored East Asian Economic Caucus and for the establishment of a yen bloc portends a different scenario.

The Japanese have long taken a strategic approach to technology transfer During the Cold War, the keiretsu system and powerful government controls prevented the penetration of Japanese domestic markets by foreign firms. American manufacturers were permitted to participate in the Japanese market primarily through technology sales. This strategy allowed technology to flow into the Japanese economy while investment restrictions excluded foreigners and foreign control. Meanwhile, American businesspeople, eager to reap ready profits through sales of technology to Japan, inadvertently sold off their competitive advantage in hightechnology products without gaining significant market access in return.

The vast majority of U.S.-Japan corporate ventures from the l950S until the mid-1980s involved licensing agreements that entailed the straight-out sale of U.S. patents, directly transferring basic research and development knowledge to Japanese manufacturers. From 1951 through 1983, Japanese companies entered into some 42,000 contracts for technology imports, paying a cumulative price of $17 billion. The Japanese expense to acquire this advanced technology, about 500 million per year, was far lower than it would have cost to develop the same technology domestically. In contrast, the United States often spent more in one year on research and development--as early as 1964, for example, U.S. government and business spending on research and development totaled roughly 19 billion--than Japan ultimately expended in technology purchases spanning three decades. Two prominent examples of vital technologies transferred during this period are Bell Laboratories' transistor designs and RCA'S color television and videocasette recorder plans.

Japan gleaned important lessons from these U.S. experiences and is determined not to repeat American mistakes. Fearful of initiating a similar competitive backlash, Japanese firms currently investing in Southeast Asia focus on market penetration and the control of outward flows of technology Moreover,

the Japanese government coordinates **foreign** aid with **foreign direct investment** to support Japanese penetration of a local market, ensure successful limited technology transfer, and help business ventures profit.

If American firms persist in their past technology sales tactics in Southeast Asia while the Japanese pursue strategic technology transfer in the region, U.S. firms may soon find themselves excluded from a Japan-centered regional economic bloc. In Thailand, Japanese manufacturers already control go percent of the automobile market, employ seven percent of the local manufacturing labor, and are indirectly responsible for hundreds of thousands of jobs. A Thai Foreign Ministry official stated recently, "Economically, we are dependent upon Japan . . . it would be next to impossible to restructure our economic relationship." In Malaysia, Matsushita's operations alone account for roughly four percent of GDP and employ over 17,000 Malaysians who every morning don the Matsushita uniform and sing the Matsushita song. In Indonesia, the capitalization of Japanese firms dominates the local financial markets. Japan is now the principal trading partner for all three nations, and in the last decade it has sent them tens of billions of dollars of foreign aid.

TIES THAT STIFLE

When Malaysia, Thailand, and Indonesia liberalized their economies in the mid-1980s Japanese manufacturers poured in. Japanese direct investment in these three countries swelled into the billions of dollars, constituting between one-third and one-half of all Japanese direct investment in Asia from 1988 on. This level of investment has persisted during the 1990S, averaging $2.7 billion per year even at the trough of the Japanese recession. With massive investment in Malaysia, Matsushita has made that country the world's largest exporter of air conditioners, and Sony and Hitachi have made it the leading exporter of semiconductors as well. Thailand hosts a Minebea ball bearing plant, the largest in the world; Sharp microwave oven and refrigerator factories; and Mitsubishi facilities for producing color television components. The Japanese automotive industry has set up shop in Indonesia, with firms such as Toyota, Hitachi Zosen, and Niigata Engineering producing automobiles, construction equipment, and diesel engines.

Movements of physical capital on such a large scale naturally involve substantial technology transfer, especially if investors hope to manufacture products competitive in global markets. Determined not to suffer the same fate as American manufacturers, Japanese firms have been careful to retain control over their vital knowhow when doing business in developing countries. Japanese multinationals generally transfer only the technology necessary for production and ensure that market penetration accompanies any transfers. As a result, local firms have been prevented from acquiring and mastering the technology necessary to compete with Japanese firms, and the latter now dominate the national economies.

These Japanese companies use various methods to limit technology flows and keep decisions about them in the hands of Japanese nationals. Unlike U.S. firms, which have a strong preference for wholly owned subsidiaries, the Japanese have found that a company can be controlled through its key managerial and technical positions. According to a Hiroshima University survey of Japanese management practices in Malaysia, over 78 percent of the factory managers, over 6o percent of the directors and presidents, and 100 percent of the vice chairmen were Japanese. American and European multinationals tend not to fill upper management positions in such an exclusive fashion: flagship firms like McKinsey & Co. and H.J. Heinz are headed by foreign nationals, and Price Waterhouse and PepsiCo have even established schools in Shanghai to train their Chinese managers.

Since non-Japanese rarely rise above the position of mid-level manager in a Japanese affiliate, decisions

regarding the amount and type of technology transferred depend on the Japanese headquarters' global strategies, not on local interests or goals. Furthermore, by not preparing domestic employees for highlevel positions, Japanese firms prevent them from building the capability to implement technology independently. Japanese companies also bring with them substantial financial clout. The average Japanese joint venture during the early 1990S received over half of its financial capital from the Japanese parent company, and small and medium-sized enterprises relied on the parent for almost all of theirs. Naturally, if the life of a joint venture hinges on Japanese financial capital, the Japanese partner can insist on control over the technology flowing into the operation. The structure of these joint ventures also leaves the Japanese partner in control of supplier relationships, pricing, and profits.

Even the increasing use of local financing furthers the aims of Japanese investors. It ties up large quantities of regional capital in Japanese affiliates, diverting funds away from purely local ventures that might stimulate the development of indigenous technology. Since joint ventures with established Japanese firms are less risky than purely domestic ventures, they are apt to gain access to national resources more easily, elbowing aside indigenous firms that might nurture competitive technologies.

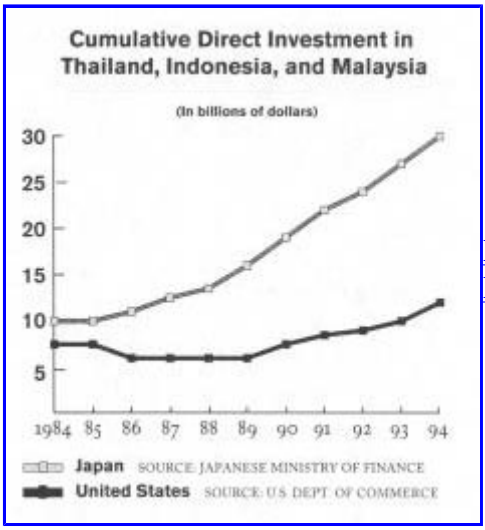
Moreover, Japan's relatively closed markets prevent Southeast Asian hightechnology firms from earning the profits required for further technology transfer and from building the customer bases necessary for economies of scale. Exports to Japan by Malaysia, Thailand, and Indonesia are still mostly primary commodities, while imports from Japan are almost all manufactured goods. The manufactured exports that do make it to Japan rarely come from purely Southeast Asian firms; they are usually produced by Japanese subsidiaries or joint ventures affiliated with a Japanese company.

When technology transfer does occur, Japanese firms typically license older technologies to firms in developing countries while keeping newer technologies at home. So, while Sony, Hitachi, Sharp, and Mitsubishi have set up basic production operations in Southeast Asia, their design, research, and development facilities have remained in Japan, and this practice has shown no sign of changing. According to a study recently published by Hiroshima University, Japanese and local managers in Malaysia differ strikingly in their expectations of future technology transfer. Both groups agreed that design and development technologies had not yet been transferred, but while Malaysians expected such transfers soon, Japanese respondents indicated no such plans. Research confirms these trends in Thailand and Indonesia as well. Even Malaysian Prime Minister Mahathir bin Mohamad, a professed convert to "the Japanese model," criticized slow Japanese technology transfer in March 1994 and threatened to stop doing business with Mitsubishi if Japan was not more forthcoming with its know-how. Japanese businesses have not responded with much enthusiasm. A Japanese executive in Thailand recently summed up their point of view, saying, The Thais think they can sit behind their desks and the technology will fall on them from the sky. If they want the technology they should have the guts to do what we did, which is go out and steal it."

SCANT OPTIONS

One reason Southeast Asian firms do not "steal" technology is that they lack the strong technical foundation and developed infrastructure needed to acquire and adapt foreign technologies. These problems also hinder efforts to attract Western investors. In Malaysia, skilled labor accounts for less than three percent of the work force, compared with six to eight percent in Japan or Western Europe at a similar stage of development. Moreover, only 3 Malaysians in 100,000 are engaged in research and development, a mere one-hundredth the figure in the developed world. And barely over half a percent of Malaysia's GDP is reinvested in research and development, a rate half that of South Korea and about one-sixth that of the major industrialized nations. Southeast Asia's lack of infrastructure and technical

competence at times even puts Japanese investments at risk, as in the early 1970S when Japanese integrated-circuit ventures in Malaysia suffered from inadequate supporting industries and infrastructure.



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Cumulative Direct Investment in Thailand, Indonesia, and Malaysia

Although Japanese investment in Southeast Asia has been business-led, the Japanese government has supported its corporate constituents by providing these developing nations with billions of dollars of foreign aid targeted for infrastructure development and improvement of human capital, a policy that ultimately **benefits** both the recipient nation and Japanese investors. Such improvements not only provide fertile ground for the transfer of manufacturing but also create a solid domestic economic base, making possible the purchase of more goods from Japan.

Recent Japanese grants and loans have funded, among other projects, metallurgical laboratories in Indonesia and railway improvements and harbors in Malaysia. Often this government aid returns to Japan in the form of capital goods purchases or infrastructure projects. In Thailand, for example, Japanese aid has contributed to massive telephone network expansions, and since local expertise is extremely limited, Japanese firms have been awarded the projects, leaving Thailand's telecommunications system heavily dependent on Japanese equipment suppliers.

Immediately after World War II, and even more so after the communist takeover of China, the United States became a key economic player in Malaysia, Thailand, and Indonesia. Washington provided **foreign** aid and military security arrangements bilaterally, and American businesspeople were the source of much **investment**. However, the **foreign** aid was either tied to military arrangements or used for basic human needs and was not necessarily related to American business **investments**. Most U.S. **direct investment** in the region went toward exploiting the vast reserves of petroleum and natural gas there.

Unfortunately, this situation is changing only very slowly. Although American **direct investment** in the three countries increased during the mid-1980s, it was dwarfed **investment**. In 1990, when Japanese annual **direct investment** in the region hit $3 billion, Americans invested only about $900 million. Moreover, while Japanese **investment** poured into the regional manufacturing and construction sectors, accounting for as much as 46 percent and 59 percent respectively of all **direct foreign investment** in these industries during the 1970S and 1980S, American firms continued to focus on mining,

contributing 66 percent of the **direct foreign investment** in that sector in 1993. New petroleum projects have succeeded in attracting more American **investment** in recent years, but the gap between Japanese and American annual **direct investment** in the region in 1994 was still approximately $1.5 billion.

When American firms do invest in manufacturing in Southeast Asia, they tend to concentrate in electrical appliances, textiles, and foodstuffs, with a much smaller presence in more technologically advanced industries. For example, one of Indonesia's largest conglomerates, Astra International, has major joint ventures with Toyota, Honda, Daihatsu, Mitsubishi, Komatsu, and Fuji, but it ceased all production operations with Western partners by the early 1990S because Japan was the only available source of capital.

The current picture of U.S. direct investment in the region is mixed. Although investment flows have both increased and diversified during the mid1990S, many firms still fail to take a strategic approach toward technology, selling it off without obtaining long-term market penetration, just as in Japan 40 years ago. The 1993 transfer of $250 million worth of U.S. aerospace technology to Malaysia to offset the one-time purchase of 8 FA-18D fighter aircraft is a case in point. A few American manufacturers are beginning to realize the advantages of market penetration strategies in Southeast Asia. Companies such as Intel and Advanced Micro Devices engage in high-level production and some design in Southeast Asia, and Apple, Motorola, IBM, and Compaq compete fiercely for regional market share. However, many more American firms have yet to catch on.

TECHNOLOGY MATTERS

The United States must address its shortsighted technology transfer practices if it is to prevent the evolution of a Japan-centered regional economic bloc. Control over technology matters. It can be used both defensively, as a way of building up a nation's economic competitiveness, and aggressively, as a means of market penetration.

Both government and business must get over the "not invented here" syndrome, the assertion that the United States has nothing to gain from foreign research and development. The United States built its first industries--textiles and munitions--on technology that was aggressively acquired abroad, a practice generally abandoned after the country demonstrated its technological and manufacturing superiority during World War II. The National Research Council has listed the acquisition of technology and know-how from Japan as a national priority, and it is time for such a strategy to be considered on a global basis. More support should be given to programs such as the Commerce Department's small Asia-Pacific Technology Program, which collects and disseminates information on East Asian developments in science and technology.

Moreover, the United States' first-toinvent patent system, which is out of step with the first-to-file system prevalent worldwide, deserves reexamination. In a first-to-file system, the first person applying for a patent is awarded it, regardless of who invented the technology. This race to file stimulates aggressive technology acquisition and a defensive approach to technology export. Conversely, in a firstto-invent system, firms have no such motivation because it does not matter who files for a patent first, just who invented the technology first. This difference in patent structures often forces American firms to enter into special relationships with foreign firms in order to establish intellectual property in foreign markets. According to the National Research Council, that is already a problem in the biotechnology market in Japan where, paradoxically, U.S. firms must trade technology with local firms for help with patent protection. The trade-related intellectual property negotiations during the Uruguay

Round of the General Agreement on Tariffs and Trade started a movement toward a first-to-file system in the United States. American policymakers should build on this momentum rather than stall it, as the U.S. Patent and Trademark Office has done.

Just as it monitors the sale of vital military technology, the U.S. government should monitor **foreign** purchases of American technology and domestic firms and prevent those that threaten national economic security. The 1988 Omnibus Trade and Competitiveness Act allows for such scrutiny, and in some cases prohibition, of individual purchases but does not address the cumulative effect of otherwise legal transactions. Reciprocity is another important issue. Due largely to the pervasive effects of nontariff trade barriers, Japan is up to 100 times less receptive to **foreign direct investment** than most industrialized nations, according to the Office of the U.S. Trade Representative. International technology flows and market penetration will never even out until U.S. companies can acquire Japanese firms in the same manner that the Japanese acquire U.S. firms.

The United States can prevent the development of competitive, exclusionary regional trading blocs by pursuing participation in them. But Washington must order its domestic policy so that American firms operate in an environment conducive to long-term strategies and in which firms think strategically about technology control.

In the absence of these reforms, a yen bloc may evolve in Southeast Asia. And although the region itself is not necessarily a threat to American global competitiveness, Japan's deep penetration of these markets should serve as a wake-up call to American government and business. The true tigers of Asia, the billionperson markets of India and China, must not be lost without a contest.

[Author note]

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